AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended): An apparatus for detecting a data transmission rate transmitted through a serial bus, the apparatus comprising:

a data transmission rate detecting unit for detecting a data transmission rate of bit stream data transmitted through a predetermined transmission line;

a sampler for sampling a data transmission rate detected by the data transmission rate detecting unit at a predetermined ~~period~~ interval;

a low-pass filter for low-pass filtering a value sampled by the sampler to produce a first low-pass filtered value;

an error detecting unit for detecting and outputting an error value in the data transmission rate of the transmitted bit stream data using ~~the~~ a value ~~sampled~~ output by the sampler and the first low-pass filtered value;

a comparing unit for comparing the error value ~~detected~~ output by the error detecting unit with a reference error level; and

an estimated data transmission rate output unit for outputting an estimated data transmission rate based on the first low-pass filtered value when the error value is smaller than the reference error level.

2. (currently amended): The apparatus for detecting a data transmission rate according to claim 1, wherein the error detecting unit is formed to detect an error value of one isochronous

period, the comparing unit is formed to compare the error value of the one isochronous period with the reference error level, and the estimated data transmission rate output unit is formed to output ~~the~~ an estimated data transmission rate of the one isochronous period, in a case where the serial bus is an IEEE 1394 bus.

3. (currently amended): The apparatus for detecting a data transmission rate according to claim 2, wherein the error detecting unit is formed to calculate a low-pass filtered value of the one isochronous period from the first low-pass filtered value, to calculate a sampled value of the one isochronous period from the ~~sampled~~ value output by the sampler, and to divide an absolute difference between the low-pass filtered value of the one isochronous period and the sampled value of the one isochronous period by the sampled value of the one isochronous period~~, and to detect an error of the one isochronous period~~.

4. (currently amended): The apparatus for detecting a data transmission rate according to claim 2, wherein the comparing unit sets one reference error level selected from a plurality of reference error levels by a user as the reference error level.

5. (currently amended): The apparatus for detecting a data transmission rate according to claim 2, wherein the error detecting unit is formed to calculate a low-pass filtered value of the one isochronous period from the first low-pass filtered value, to calculate a sampled value of the one isochronous period from the ~~sampled~~ value output by the sampler, and to divide an absolute difference between the low-pass filtered value of the one isochronous period and the sampled value of the one isochronous period by the sampled value of the one isochronous period~~, and to detect an error value of the one isochronous period~~; and

wherein the comparing unit sets a value obtained when one reference error level selected by a user from a plurality of reference error levels is multiplied by the sampled value of the one isochronous period, as the reference error level, and is formed to compare the error value of the one isochronous period with the reference error level.

6. (currently amended): The apparatus for detecting a data transmission rate according to claim 2, wherein the estimated data transmission rate output unit calculates a low-pass filtered value of the one isochronous period from the first low-pass filtered value and outputs the low-pass filtered value of the one isochronous period as the estimated data transmission rate.

7. (original): The apparatus for detecting a data transmission rate according to claim 2, wherein the low-pass filter is an infinite impulse response (IIR) low-pass filter.

8. (original): The apparatus for detecting a data transmission rate according to claim 1, wherein the predetermined transmission line is a line between an external input/output interface unit for interfacing with an MPEG transport stream (TS) demultiplexer and an audio/video interface unit.

9. (original): The apparatus for detecting a data transmission rate according to claim 1, wherein the apparatus detects the data transmission rate in a word unit, and a predetermined sampling frequency is set to 125Hz.

10. (currently amended): An apparatus for detecting a data transmission rate through a serial bus after a bandwidth for the serial bus is allocated to a system, the apparatus comprising:

a data transmission rate detecting unit for detecting a data transmission rate of bit stream data transmitted through a predetermined transmission line;

a sampler for sampling a data transmission rate detected by the data transmission rate detecting unit at a predetermined ~~period~~ interval;

a low-pass filter for low-pass filtering a value ~~sampled~~ output by the sampler to produce a first low pass filtered value;

an error detecting unit for detecting and outputting an error value in the data transmission rate of the transmitted bit stream data using the value ~~sampled~~ output by the sampler and [[a]] the first low-pass filtered value;

a first comparing unit for comparing the error value ~~detected~~ output by the error detecting unit with a reference error level;

an estimated data transmission rate output unit for outputting an estimated data transmission rate based on the first low-pass filtered value when the error value is smaller than the reference error level; and

a second comparing unit for comparing the estimated data transmission rate with an upper bound and a lower bound to notify whether the estimated data transmission rate output from the estimated data transmission rate output unit exists between the upper bound and the lower bound set by a user according to ~~the~~ an allocated bandwidth and to determine whether the estimated data transmission rate is output.

11. (original): The apparatus for detecting a data transmission rate according to claim 10, wherein the second comparing unit generates an interrupt for notifying whether the estimated data transmission rate output from the estimated data transmission rate output unit exists between the upper bound and the lower bound and an output control signal to the estimated data transmission rate output unit so as to output the estimated data transmission rate, in a case where

the estimated data transmission rate does not exist between the upper bound and the lower bound.

12. (original): The apparatus for detecting a data transmission rate according to claim 10, wherein the error detecting unit is formed to detect an error value of one isochronous period, the first comparing unit is formed to compare the error value of the one isochronous period with the reference error level, and the estimated data transmission rate output unit is formed to output an estimated data transmission rate of the one isochronous period, in a case where the serial bus is an IEEE 1394 bus.

13. (original): The apparatus for detecting a data transmission rate according to claim 10, wherein the predetermined transmission line is a line between an external input/output interface unit for interfacing with an MPEG transport stream (TS) demultiplexer and an audio/video interface unit.

14. (currently amended): A method for detecting a data transmission rate through a serial bus, the method comprising the steps of:

(a) detecting a data transmission rate of bit stream data transmitted through a predetermined transmission line;

(b) detecting an error in the data transmission rate at a first predetermined ~~period~~ interval using the detected data transmission rate;

(c) comparing the error with a reference error level;

(d) checking present operation mode when the error is smaller than the reference error level;

(e) outputting an estimated data transmission rate for the first predetermined ~~period~~ interval ~~using~~ as the data transmission rate when the present operation mode is a transmit/receive average mode; and

(f) outputting the estimated data transmission rate for the first predetermined ~~period~~ interval as the data transmission rate in a case where it is determined that the estimated data transmission rate for the first predetermined period does not exist between a predetermined upper bound and a predetermined lower bound when the present operation mode is a transmit/receive tracking mode.

15. (currently amended): The method for detecting a data transmission rate according to claim 14, wherein the step (b) comprises the steps of:

(b1) sampling the detected data transmission rate at a first predetermined frequency;

(b2) filtering a sampled value output in the step (b1) by using low-pass filtering to produce a first low pass filtered value; and

(b3) detecting the error in the data transmission rate of the bit stream data using the sampled value and [[a]] the first low-pass filtered value in the step (b2).

16. (currently amended): The method for detecting a data transmission rate according to claim 15, wherein the reference error level in the step (c) is one reference error level selected from a plurality of reference error levels by a user, or a value resulting from performing a predetermined operation on the one selected reference error level and the sampled value.

17. (previously presented): The method for detecting a data transmission rate according to claim 15, wherein the step (a) is performed in a word unit, the first predetermined period is

one isochronous period, and the first predetermined frequency is 125Hz, in a case where the serial bus is an IEEE 1394 bus.

18. (currently amended): The method for detecting a data transmission rate according to claim 15, wherein the first low-pass filtered value of the first predetermined period detected ~~using the low-pass filtered value~~ in the step (b2) is output as the estimated data transmission rate in the steps (e) and (f).

19. (currently amended): The method for detecting a data transmission rate according to claim 14, wherein the predetermined upper bound and the predetermined lower bound in the step (f) are determined on the basis of the estimated data transmission rate output in the step (e), and the step (f) further comprises the step of notifying whether the estimated data transmission rate exists between the predetermined upper bound and the predetermined lower bound.